



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/830,684	04/30/2001	Masato Takahashi	206379US2PCT	9633
22850	7590	05/13/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			KIM, PETER B	
			ART UNIT	PAPER NUMBER
			2851	
DATE MAILED: 05/13/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

SM

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/830,684	TAKAHASHI, MASATO	
	<b>Examiner</b>	<b>Art Unit</b>	
	Peter B. Kim	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 28,29,31-48 and 51-69 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 46-48 and 51-57 is/are allowed.
- 6) ☒ Claim(s) 28,29,31,35,42-45,58-62 and 64-69 is/are rejected.
- 7) ☒ Claim(s) 32-34,37-41 and 63 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

### **DETAILED ACTION**

Applicant's arguments filed on Mar. 23, 2005 have been fully considered.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 61 and 62 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

“the driver” lacks proper antecedent basis.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 28, 36, and 42-45 are rejected under 35 U.S.C. 102(b) as being anticipated by Ebinuma (6,252,314).

Ebinuma discloses a stage unit comprising a sample stage (3) that holds a sample (51), a stage driving mechanism (6), a first transmitting member (7) to which at least one part of the stage driving mechanism is connected and a reaction force caused by driving the samples stage is transmitted (6 and 7 are connected by the vertical structure shown in Fig. 1); and a first damping member (8) that is arranged on the first damping member and damps a vibration, the first damping member is different from a base (10) that supports the first transmitting member and

Art Unit: 2851

being arranged at a position where a maximum strain of the first transmitting member is caused (Fig. 1). Ebinuma discloses a coarse stage (3b) moving in one direction and a fine stage (3a) that holds the sample and is movable relative to the coarse stage. Ebinuma discloses an exposure apparatus comprising a mask stage unit (1) and a substrate stage (3) that moves and holds a substrate, a projection optical system (2), a holder (9) for holding the optical system and a controller that synchronously moves the mask and the substrate, when the pattern is transferred (col. 3, lines 13-31).

Claims 58-60, 64 and 65 are rejected under 35 U.S.C. 102(b) as being anticipated by Osanai (5,610,686).

Osanai discloses a stage apparatus comprising a counter stage (8) that moves in a direction opposite to the movable stage (5) that holds a substrate, a first supporting frame (9) that movably supports the counter stage, and a damping member (11) that is arranged on the first supporting frame at a position where maximum strain of the supporting frame is caused and damps vibration from the first supporting frame, the damping member being different from a base (12) that supports the first supporting frame. Osanai discloses the base (12) that is different from the first supporting frame (9).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ebinuma.

Ebinuma discloses the claimed invention as discussed above; however, Ebinuma does not disclose expressly that the substrate stage is driven by an electro-magnetic interaction between a stator and a mover. Ebinuma discloses the mask stage driven by a stator and a mover (Fig. 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the similar driving mechanism for the substrate stage as the mask stage in order to provide synchronous scanning as taught by Ebinuma in col. 3, lines 13-31.

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ebinuma in view of Yanagawa.

Ebinuma discloses the claimed invention as discussed above; however, Ebinuma does not disclose the damping member which is a piezoelectric element. Yanagawa discloses in col. 11, lines 3-32, a damping member which is a piezoelectric element. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a piezoelectric element to the invention of Ebinuma in order to isolate the vibration to increase accuracy in exposure.

Claims 67 and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osanai.

Osanai discloses the method as discussed above; however, Osanai discloses the method for a substrate stage not a mask stage. Although Osanai teaches the method with respect to a substrate stage it would have been obvious to one of ordinary skill in the art to provide the

Art Unit: 2851

method with respect to the mask stage because both mask and substrate stages cause vibration during movement, and the vibration must be dampened.

Claims 66 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osanai in view of Yanagawa.

Osanai discloses the claimed invention as discussed above; however, Osanai does not disclose the damping member which is a piezoelectric element. Yanagawa discloses in col. 11, lines 3-32, a damping member which is a piezoelectric element. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a piezoelectric element to the invention of Yanagawa in order to isolate the vibration to increase accuracy in exposure.

#### ***Allowable Subject Matter***

Claims 32-34, 37-41 and 63 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 46-48, 51-57 are allowed.

#### ***Response to Arguments***

Applicant's arguments with respect to claims 28, 58, 64 and 67 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 2851

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter B. Kim whose telephone number is (571) 272-2120. The examiner can normally be reached on 8:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Peter B. Kim  
Primary Examiner  
Art Unit 2851

May 9, 2005